REMARKS

Claim 1 has been amended to clarify the language regarding the nature and extent of emissions from the second stabilizing component. See pages 34/ line 10 and 38/ line 13. Also, functional language requiring the second dopant to be present in an amount sufficient to reduce the luminescence loss of the device has been added to distinguish over the broad brush laundry list of combination emitters of the cited art.

Claims 1, 3-10, 12, 14, and 16-22 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. According to the Examiner:

> The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification is not enabling to one of ordinary skill in the art to select a second, stabilizing dopant for a device emitting absolutely no light. It is noted that all of the stabilizing dopants specifically described by applicant in the examples actually show a shift in C.I.E. coordinates when incorporated into a device at preferred concentration levels and accordingly, none show emission of absolutely no light as claimed. The coordinate shift shows there is actually some emission by the stabilizing dopants, because the examples show that everything else in the device remains constant in the comparison embodiments. In light of applicant's definition and description of stabilizing dopants in the present specification, applicant appears to be actually claiming a device comprising two dopants wherein at least one of said dopants is at a low concentration. The specification is not enabling to one of ordinary skill in the art to select a second, stabilizing dopant for a device emitting absolutely no light.

It is believed that the amendment of claim 1 is sufficient to overcome any concerns the Examiner should have. The claim is now limited to the addition of "stabilizing" second dopants that do not significantly adversely affect color. The Examiner argues that it is not correct that a second dopant will emit "absolutely no light". The corollary to the Examiner's assertion is that all second dopants will emit some light. While applicants disagree that this corollary is true, the claim has been amended in an alternative manner relying on other language in the case. It is now specified that the stabilizing dopant be selected so that the emission color resulting from the combination is not significantly affected

by the second dopant. See pages 34/ line 10 and 38/ line 13. Reference to Tables 2 and 6 indicates that a variation in the CIE values of up to 0.027 is seen for CIEx in Table 6. The CIEy variation in that table is only 0.009. In Table 2, the variations for CIEx and CIEy are 0.006 and 0.003, respectively. Thus an "insignificant" color variation due to the addition of the second dopant ranges up to 0.027 CIE units.

The Examiner argues that the data in the case supports her position that the second dopant emits and that its contribution increases as the amount of the second dopant increases. It is noted first of all that the statement that there is "absolutely" no emission appears to have originated with the Examiner and not the specification or Applicants' response. Applicants use the term "no emission" to contrast the prior art suggestions of using a combination of emitters to change color with the insignificant effect of the stabilizing second dopant of the invention.

In looking at the data of the application, one needs to consider the noise level in the data (reproducibility) and the direction of the experimental values as a function of the amount of the second dopant present. The CIE values are reproducible to the extent of $\pm$0.002. Using this range of 0.004, the data in Tables 1 and 2 does not present much difference in emission color over the range of data with and without the second dopant. Moreover, if one expected that the addition of the second component would cause the combination to function like a mixture to change the color in proportion to the amount added, the data for one or both of CIEx or CIEy in all six tables, varies in an inconsistent manner as the amount of second dopant is increased. It is not seen how the Examiner's reliance on the data of the tables demonstrates that there is a significant emission by the second dopant.

It is believed that the present amendment overcomes the Examiner's concerns under 35 USC 112, first paragraph.

Claims 1, 3-10, 12, 14, and 16-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaya et al. (US 6,203,933) in view of Tang et al. (US 4,769,292). According to the Examiner:

> Nakaya et al. teaches organic EL elements comprising light emitting layers including a host material such as aluminum complexes having 8-quinolinol as a ligand with regard to the host material aluminum trisoxine (see col. 33, lines 43-48 and 17-28)

("host"). At least one compound according to the Nakaya et al. formula (I) is contained in the light emitting layer in an amount of at least 0.1% by weight (see col. 33, lines 29-31) ("second dopant"). The specific formula (I) compound *(corresponding to 1-b in the present application)* is taught to col. 11-12 (bottom half of page), compound "1-4". Nakaya et al. further teaches "the light emitting layer may additionally contain another luminescent material in addition to the compound of the general formula (I)" such as those "disclosed in JP 264692/1998" (see col. 33, lines 15-19) *(Applicants' "first dopant")*. A patent family equivalent of JP 264692/1998 is Tang et al. (US 4,769,292), which teaches fluorescent coumarin dyes as dopants (see col. 11, line 31 and following). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected the coumarin dye as an additional luminescent component for the light emitting layer, because Nakaya et al. discloses dyes such as those taught in JP 264692/1998 are suitable and Tang et al. teaches in the U.S. patent equivalent of JP 264692/1998 that coumarin dyes are suitable dopants. A prima facie case for combining the host, first dopant, and second dopant has been established and since each of the three materials are the same as applicant's materials, the emission properties of claims 1 and 3 are considered to be inherent.

It is noted that the Examiner issued a restriction requirement in the subject application stating the host, the first dopant, and the second dopant each included patentably distinct species and required the Applicants to select a species from each group. Now, the Examiner in the above passage appears to be equating the many species in order to arrive at an art rejection.

Applicants do not believe that a prima facie case has been established. There is no suggestion or motivation in any of the references to combine any three components for the purpose of improving stability of the light emitting device, especially there is no suggestion to do so without significantly affecting the color of the emission. The Examiner apparently relies on the suggestion of using more than one emitter (presumably as a means of altering the resulting device emission color) as a reason why one would be motivated to make the claimed combination. However, there is no suggestion of any actual three-way combination that falls within the present claims. The unstated combination are merely invitations to try for color variation with no suggestion to select those meeting the energy band gap requirements and stability improving results of the claims of the invention.

Formula (I) of Nakaya (col. 3/ln 16) is generic enough to cover billions of condensed ring aromatic compounds. The formula (I) contains from 3 to 10 condensed ring groups bearing from 2 to 6 aromatic-bearing groups. Clearly, this genus encompasses millions of patentably distinct species when viewed as the Examiner did for restriction purposes. It is true that Nakaya compound 1-4 corresponds to elected species compound 1b. But there are 16 columns of such compounds extending from col. 11 to 28 in addition to all of those possible using the provided formulas. Never is there a suggestion of forming any specific combination of the compounds meeting the requirements of the claim limitations.

The Examiner then observes:

> With regard to the dopant amounts, the Nakaya et al. formula (I) compound is used in an amount of preferably 0.01-20% weight (see col. 33, lines 38-39). The secondary reference teaches the coumarin dye dopants are incorporated into light emitting layers in amounts within the ranges of claims 4-6 (see Tables, col. 35). In addition, it would have been obvious to one of ordinary skill in the art to have included the "additional luminescent component" ("first dopant") in a similar amount as the formula (I) compound ("second dopant"), because one would except the additional luminescent component to be similarly incorporated into the device and to perform a similar function as the specifically mention formula (I) luminescent component.

Again, it appears that the teachings of the art are of immense breadth and do not supply a reason for choosing other than color modification which is outside the scope of the present claims.

The Examiner furthermore comments as follows:

> The examiner submits the prior art references teach dopants in the same amounts as those set forth by applicant as non-emitting. Accordingly, dopants used in the same concentrations would inherently have the same emission properties and stability properties. It is noted that dopants described by applicant as stabilizing, <u>non-emitting</u> dopants actually show a shift in C.I.E. coordinates when incorporated into a device at preferred concentration levels (see specification Examples). The coordinate shift shows there is actually some emission by the stabilizing dopants, because the examples show that everything else in the device remains constant in the comparison embodiments. In light of applicant's definition and description of stabilizing dopants in the present specification, applicant appears to be actually claiming a device comprising two dopants wherein at least one of said

dopants is at a low concentration. The applied references teach dopants used at the same low concentrations.

In response, the Examiner is again reminded that the data of the Tables is not consistent with the Examiner's conclusion that the data merely reflects a progressive effect as more and more of the second dopant is added.

Summarizing Applicants' position, as noted above, the Examiner's analysis fails for at least the following reasons:

1. Any suggestions to use multiple emitters are presumably for purposes of altering the device emission color, since no other benefits are provides. The present device does not allow for significant changes on color.

2. Improved stability is not contemplated.

3. There is no suggestion of the parameters of bandgap and stabilization improvement requirements of the claims.

4. There is no specific or general guidance of which dopants to use in combination, nor of the amounts in which to use them.

In view of the foregoing amendments and remarks, an allowance is respectfully requested. It is also requested that the non-elected species claims be examined for allowance as well.

Respectfully submitted,

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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.